

REMARKS

Applicant has amended claims 1 and 5. Support for new claims can be found in the as-filed specification, e.g., paragraphs [0019], [0055], and [0056]. Claims 1-3, 5-7, and 9-11 are currently pending.

The final Office Action¹:

- rejected claims 1-3, 5-7, and 9 under 35 U.S.C. § 103(a) based on JP 10-088361 to Asakura et al. ("Asakura") in view of U.S. Patent No. 5,803,131 to Iwasa et al. ("Iwasa"), U.S. Patent No. 4,437,999 to Mayne ("Mayne"), JP 11-244360 to Hattori et al. ("Hattori"), and JP 55-145620 to Inoue ("Inoue") (Office Action, page 3); and
- rejected claims 1-3, 5-7, and 9-11 under 35 U.S.C. § 103(a) based on Asakura in view of Iwasa and JP 2002-025971 to Nakajima et al. ("Nakajima") (*Id.* at 6).

Applicant respectfully requests reconsideration of the rejections for at least the following reasons.

Each of claims 1 and 5, as amended, recites, among other things, "irradiating a resin material with ultraviolet rays when said resin material is in contact with a first solution consisting of ozone in an organic or inorganic polar solvent other than water . . . wherein the resin material irradiated by the ultraviolet rays while in contact with the first solution lacks a surface having prior roughening."

None of the cited references, alone or in combination, teaches or suggests the above feature. The Office Action acknowledged that Asakura does not teach that "the UV treatment is done while the resin material is in contact with a first solution containing ozone and a specific solvent as claimed." Office Action at 3, 7.

¹ The Office Action may contain characterizations of the claims and the related art with which Applicant does not necessarily agree. Unless expressly noted otherwise, Applicant declines to subscribe to any statement or characterization in the Office Action.

Rather than disclosing, e.g., the use of "a first solution consisting of ozone in an organic or inorganic polar solvent other than water," as recited in amended claims 1 and 5, Iwasa discloses using ozone in water, and does not provide any legitimate reason to remove water from the ozone solution. See Iwasa, col. 9, lines 11-19. Moreover, Iwasa teaches that the aqueous ozone solution is desirably treated to a temperature between 65 -85 °C, and further teaches that at a room temperature (as used in the present application) ozone solubility is substantially high, therefore not suitable for oxidation activity. *Id.* at col. 9, lines 26-40.

Mayne discloses agitating water to distribute ozone therein. See Mayne, col. 1, lines 55-59. Mayne further discloses that UV light has an incidental heating effect that causes evaporation of some amount of water, which would be offset by the amount of water produced from oxidation of the organic material. See *Id.* at col. 4, lines 48-63. In contrast, "the organic or inorganic polar solvent other than water" of the first solution recited in claims 1 and 5, would not have the same evaporation issues as Mayne, and even if such a solvent might evaporate, the lost amount of the solvent could not be offset by the amount of water produced. One of ordinary skill in the art at the time of invention, therefore, would not have had any legitimate reason to consider Mayne to arrive at the claimed invention.

Hattori and Inoue also do not teach or suggest at least "a first solution consisting of ozone in an organic or inorganic polar solvent other than water," as recited in amended claims 1 and 5. Hattori discloses that water is added to ethanol to make 10 to 30% ethanol solution. Hattori, Abstract. Hattori further appears to teach no higher than 70 vol.% ethanol, as shown in Fig. 3, and discloses that "it is expected that the depressant action of this degradation becomes so strong. . ." Hattori, paragraph

[0013]. Hattori does not appear to provide any guidance to use 100% organic or inorganic polar solvent other than water.

Inoue merely teaches using ethanol solution (see Inoue, abstract), and neither discloses nor suggests "a first solution consisting of ozone in an organic or inorganic polar solvent other than water," as recited in amended claims 1 and 5. In fact, the Office Action acknowledged that Inoue teaches a mixture of ethanol and water. Office Action at 10, 11.

Nakajima discloses adding only 0.01 mol/L acetic acid in water. See Nakajima, paragraph [0056]. Nakajima does not provide any legitimate reason to provide "a first solution consisting of ozone in an organic or inorganic polar solvent other than water," as recited in amended claims 1 and 5.

Accordingly, the cited references, alone or in combination, fail to teach or suggest all of the features of amended claims 1 and 5.

Moreover, even if the proposed amended claims 1 and 5 were hypothetically disclosed in the combination of the cited references (a notion that Applicant disputes), the comparative study in the as-filed specification would support the non-obviousness of the claims. As previously pointed out in the June 18, 2010 Reply, Table 1 shows unexpectedly shortened treatment time in Example Nos. 3 and 4, as compared to Example Nos. 1 and 2, without 100% organic or inorganic polar solvent as a solvent for a first solution, and Comparative Example No. 1, without ozone treatment using a first solution.

"A greater than expected result is an evidentiary factor pertinent to the legal conclusion of obviousness." *In re Corkill*, 711 F. 2d 1496 (Fed. Cir. 1985); M.P.E.P. § 716.02(a). "The applicant is not required to create prior art, nor prove that his invention

would have been obvious if the prior art were different than it actually was." *In re Geiger*, 815 F.2d at 690; see also M.P.E.P. § 716.02(e)(III). Further, Applicant is not required to compare the claimed subject matter with an invention suggested by a combination of references relied upon in a § 103 rejection. See *In re Chapman*, 357 F.2d 418, 422 (C.C.P.A. 1966); M.P.E.P. § 716.02(e)(III).

Here, in the obviousness analysis set forth in the Office Action, Asakura is identified as the primary reference, which should be the closest prior art reference. Asakura does not disclose or suggest ozone treatment, not to mention a first solution consisting of ozone in an organic or inorganic polar solvent other than water. For the alleged disclosure of ozone treatment using a first solution containing ozone, the Office Action relied on combining Asakura with Iwasa, Mayne, Hattori and Inoue, or with Iwasa and Nakajima, and asserted that the secondary references "provide the suggestion of using . . . alcohol solvent [(or acetic acid)]." Office Action at 11 and 12.

As noted above, Example Nos. 1 and 2 use water for a first solution for ozone treatment, and Comparative Example No. 1 lacks ozone treatment, which corresponds to Asakura. Example Nos. 3 and 4 using a first solution, as claimed, resulted in much shorter treatment times, as compared to Example Nos. 1 and 2, and Comparative Example No. 1. Accordingly, the testing compares the claimed subject matter with the closed prior art, Asakura, in addition to also comparing the claimed subject matter to examples that are even more closely related than Asakura (Example Nos. 1 and 2). M.P.E.P. 716.02(e)(I) (Applicants may compare the claimed invention with prior art that is more closely related to the invention than the prior art relied upon by the examiner).

Considering Asakura, one of ordinary skill in the art would not have predicted such an improvement, with any reasonable expectation of success. Further, as noted

above, the secondary references do not provide any guidance that the marked improvements in the treatment time would result from using a first solution consisting of ozone in an organic or inorganic polar solvent other than water.

Therefore, even hypothetically assuming that there were to be any purported issue of obviousness regarding amended claims 1 and 5 (a notion that Applicant disputes), the testing provided in the as-filed specification rebuts any such purported obviousness, contrary to the Examiner's position in the Office Action at 6 and 9.

For at least the foregoing reasons, there is no *prima facie* case of obviousness based on the cited references, viewed alone or in combination. Claims 1 and 5 are allowable over the alleged combination of the cited references.

Claims 2, 3, 6, 7, and 9-11 depend from claim 1 and claim 5 respectively, and incorporate all of the features of the respective claim from which they depend. Accordingly, claims 2, 3, 6, 7, and 9-11 are allowable for reasons at least similar to those explained above for their respective base claims.

In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration of this application and timely allowance of the pending claims.

Entry of this Reply to Office Action under 37 C.F.R. § 1.116 is proper in order to place the claim in condition for allowance or in better form for appeal. The proposed amendments do not raise new issues or necessitate the undertaking of any additional search of the art by the Examiner, since all of the elements and their relationships should have been previously searched and considered.

Please grant any extensions of time required to enter this response and charge
any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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